

6+ day

Excretion – Life Processes Class 10 Notes

Human excretory system, excretion in plants.

Excretion in human beings:

Removal of harmful waste from the body is called excretion.

Many wastes are produced during various metabolic activities.

These need to be removed in time because their accumulation in the body can be harmful and even lethal for an organism.

Human Excretory System:

The human excretory system is composed of a pair of kidneys.

A tube, called ureter, comes out of each kidney and goes to the urinary bladder.

Urine is collected in the urinary bladder, from where it is expelled out through urethra as and when required.

Excretory system of human beings includes :

A pair of kidneys.

A urinary bladder.

A pair of the ureter.

A urethra.

Kidney:

Kidney is a bean-shaped organ which lies near the vertebral column in the abdominal cavity.

The kidney is composed of many filtering units, called nephrons.

Nephron is called the functional unit of kidney.

Nephron

It is composed of a tangled mess of tubes and a filtering part, called glomerulus.

The glomerulus is a network of blood capillaries to which renal artery is attached.

The artery which takes blood to the glomerulus is called afferent arteriole and the one receiving blood from the glomerulus is called efferent arteriole.

The glomerulus is enclosed in a capsule like portion, called Bowman's capsule. The Bowman's capsule extends into a fine tube which is highly coiled.

Tubes from various nephrons converge into collecting duct, which finally goes to the ureter.

Urine formation in the kidney: The urine formation involves three steps:

Glomerular filtration: Nitrogenous wastes, glucose, water, amino acid filter from the blood into Bowman's capsule of the nephron.

Tubular reabsorption: Now, useful substances from the filtrate are reabsorbed back by capillaries surrounding the nephron.

Secretion: Extra water, salts are secreted into the tubule which opens up into the collecting duct and then into the ureter.

Urine produced in the kidneys passes through the ureters into the urinary bladder where it is stored until it is released through the urethra.

The purpose of making urine is to filter out waste product from the blood i.e., urea which is produced in the liver.

Haemodialysis: The process of purifying blood by an artificial kidney. It is meant for kidney failure patient.

Excretion in Plants

Other wastes may be stored in leaves, bark etc. which fall off from the plant.

Plants excrete some waste into the soil around them.

Gums, resin → In old xylem

Some metabolic wastes in the form of crystals of calcium oxalates in the leaves of colocasia and stem of Zamikand.

## Nutrition in Plants and Animals

Nutrition: Process of obtaining and utilizing of food is known as nutrition.

Mode of nutrition:

Autotrophic Nutrition (All green plants)

Heterotrophic Nutrition (Animals, Man, Non-green plants)

Saprotrophic nutrition

Parasitic nutrition

Holozoic nutrition

Autotrophs: It is a mode of nutrition in which organisms can make their own food from simple raw material. Example, all green plants.

Heterotrophs: It is a mode of nutrition in which organisms cannot prepare their food on their own and depend on others. Example, animals.

Saprotrophic Nutrition: It is the process by which the organism feeds on dead and decaying matter. Example, Rhizopus, Mucor, yeast.

Photosynthesis: It is the process by which green plants prepare their own food.

Raw materials for photosynthesis:

Water and Minerals: These are absorbed by the roots from the soil.

Carbon dioxide: Carbon dioxide enters the leaves through tiny pores called stomata.

Sunlight: Energy from the sun is called solar energy.

Chlorophyll: Chlorophyll pigment helps leaves to capture solar energy.

Products of Photosynthesis: Carbohydrate-glucose- It is converted to starch.

Symbiotic relationship: Two organisms live in a close association and develop a relationship that is beneficial to both this is called a symbiotic relationship.

Example,